VOL. 25 NO. 28 July 11, 1975

Cooperative Economic Insect Report

Issued by
PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S.DEPARTMENT OF AGRICULTURE

ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
NEW PEST DETECTION AND SURVEY STAFF

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Service serves as a clearing house and does not assume responsibility for accuracy of the material.

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Volume 25 July 11, 1975 Number 28

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

POTATO LEAFHOPPER numbers increasing in Ohio, Indiana, and Wisconsin. (pp. 571-572).

Detection

- A SIRICID WASP reported for first time in United States. Known only from southeast Asia. (p. 583).

New State Records include a TABANID FLY in New Mexico (p. 578) and a DYTISCID BEETLE in Hawaii (p. 583).

For new county records, see page 583.

Reports in this issue are for week ending July 4 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING JULY 6

Reprinted from Weekly Weather and Crop Bulletin supplied by National Weather Service, NOAA.

HIGHLIGHTS: Severe flooding in the Red River Valley of the North and its tributaries has laid waste many thousands of acres of valuable farmland. The full extent of damage is not yet known. Elsewhere, a flash flood roared into Las Vegas, Nevada, on Thursday, and caused the death of 2 people and an estimated one million dollars in property damage. Warm muggy weather dominated most of the northern and central States causing several air pollution alerts to be called.

PRECIPITATION: The beginning of the week was dominated by severe flooding in the Red River Valley of the North and its tributaries. Southeastern North Dakota and northeast Minnesota were hardest hit. The James River in southeast North Dakota also devastated many acres of farmland. Severe thunderstorms and heavy rain seemed to originate in North Dakota and became most intense near the Red River and moved on into Minnesota. Elsewhere thunderstorms hit from central Texas along the gulf coast and to South Carolina. A few storms were reported in North Carolina and Virginia. Oregon and the northern Rockies were dotted with showers. A lazy high pressure system extending from Texas to New England and from the upper Mississippi Valley to Florida, and a series of low pressures in the Rockies extending into the Dakotas dominated the weather on Tuesday and Wednesday. Record flooding continued in the Red River Basin in North Dakota and Minnesota and the drainages of the Sheyenne and James Rivers in southeast North Dakota. Thunderstorms and heavy rain continued and gradually moved more northerly, but the deluge slowed drainage of the southern part of the river and worsened flooding. Some abatement of storms was seen on Wednesday. Thunderstorms

Weather of the week continued on page 586.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - WISCONSIN - Heavy in minimum-tillage cornfield in western Dane County. Larvae common on winter and spring grains statewide. Some larvae nearly full-grown in winter wheatfield in Winnebago County but less developed on oats in St. Croix County. (Wis. Ins. Sur.). MINNESOTA - Adults increased in nearly all blacklight traps; no larvae on corn yet. (Minn. Pest Rpt.). MICHIGAN - Damaged barley, wheat, and corn as far north as Tuscola County. Still problem in area of Calhoun County. (Netherton et al.).

ASTER LEAFHOPPER (Macrosteles fascifrons) - WISCONSIN - Rapidly maturing and moving into host crops. With aster yellows at 3.5 percent and numerous adults, rigid spray program essential. (Wis. Ins. Sur.). NORTH DAKOTA - Adults and nymphs up to 560 (averaged 350) per 100 sweeps on Emmons County oats. (Scholl).

CORN EARWORM (Heliothis zea) - ALABAMA - Larvae heavier than usual in Marengo County; some treatments applied. (Yates). MISSISSIPPI - Larvae averaged 0.5 per ear in 30 acres of Noxubee County field corn. (Robinson). OKLAHOMA - Larvae 1-3 per ear in 119 of 120 ears of garden sweet corn in Mayes County. Heavy in Logan and Muskogee Counties. Light on sorghum in Canadian and Jackson Counties, on alfalfa in Caddo County, and on soybeans in Sequoyah County. (Okla. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Moderate to heavy on sorghum in Texas, Canadian, and Jackson Counties. (Okla. Coop. Sur.). MISSOURI - Light to moderate, infested 20-100 percent of sorghum in southwest and north-central areas. (Thomas). ILLINOIS - Generally noneconomic, infested 0-70 (averaged 18) percent of corn in central and eastern areas. Counts per infested plant ranged one alate to several small colonies of 40-50 aphids each. (Ill. Ins. Rpt.). INDIANA - Scarce on corn, very light where present. Generally light on all sorghum seen; predators present. (Turpin, Meyer). WISCONSIN - Few colonies in Waukesha, Walworth, and Iowa Counties. Colony of 100 aphids in Iowa County. Due to number of late-planted cornfields in some counties, high populations will probably develop in later fields. (Wis. Ins. Sur.).

POTATO LEAFHOPPER (Empoasca fabae) - KENTUCKY - Ranged 200-800 per 100 sweeps of north-central area alfalfa. (Barnett). OHIO - Adults 9.4 per sweep of untreated alfalfa June 26; plants 10 inches, stunted, and yellowed. Averaged 1.7 per sweep in another new seeding 12 to 14 inches June 27. (Thoburn, Miller). Recent lengthy hot, dry weather favored rapid development on alfalfa. Yellowed and stunted growth statewide; more serious loss if hot weather continues. Adults averaged 2.3 per sweep of 6 to 18-inch regrowth alfalfa in southwest area July 1. Light to moderate yellowing in Clinton and Butler Counties where adult averages were 2.7 and 3.1 per sweep in 14 and 18-inch alfalfa. (Lewis). INDIANA - Adults and nymphs zero (probably in treated field) to 10.7 per sweep of alfalfa in southern districts. Half of fields checked in southwest and south-central districts harvested; other half ready for second (third in one field) cutting. (Wilson).

Nymphs and adults of potato leafhopper 2 or more per soybean plant in some fields. (Meyer). "Hopper-burn" in home potato fields in Tippecanoe County; this species and Epitrix fuscula (eggplant flea beetle) warranted treatment. (Chandler). WISCONSIN - Potato leafhoppers under 10 per sweep on second-growth alfalfa in all areas; reproduction underway in southwest and southeast districts. Nymphs in all districts surveyed. Under 2 per sweep on snap beans in La Crosse, Trempealeau, St. Croix, and Barron Counties. Leaf curling and tip burn obvious in garden potato planting in Kenosha County. (Wis. Ins. Sur.). MINNESOTA - Generally light on alfalfa. Yellowed and stunted leaves in one of 20 fields. Up to 450 (half nymphs) per 100 sweeps. (Minn. Pest Rpt.).

GREENBUG (Schizaphis graminum) - COLORADO - Very light on southeast area sorghum. (Schweissing). OKLAHOMA - Moderate on Jackson County sorghum. Continued very light in most Texas County fields. (Okla. Coop. Sur.). NEBRASKA - South winds and lack of rain produced increase in southeast, east, and northeast districts. Ranged 0-9 (averaged 1.35) per sorghum plant in Clay County. Ranged 43-230 (averaged 104.75) per plant on 12-inch to preboot sorghum in 4 untreated fields in Gage and Jefferson Counties. One mummy observed in Jefferson County field. Alates on 12-inch milo in northeast counties. (Gary et al.). SOUTH DAKOTA - Alates common on sorghum in Lyman and Tripp Counties. Occasional colony of nymphs on lower leaves of some sorghum. Buildup slower than in previous years. (Walgenbach). MISSOURI - Infested 20-90 percent of sorghum plants in southwest area. Single aphids or small colonies on 1-5 leaves per plant. Predators (mainly lady beetles) numerous; no parasites. (Thomas). INDIANA - Dime to dollar-sized colonies in few sorghum fields in and south of Terre Haute, Vigo County. Predators at least one per plant. (Meyer).

PICKLEWORM (Diaphania nitidalis) - ALABAMA - Larvae heavy; damaged cucumbers, cantaloups, squash, and honeydew melons in many Marengo County gardens. Infestation countywide and less damaging in some areas. (Yates).

TOMATO HORNWORM (Manduca quinquemaculata) - OKLAHOMA - First reports of season. Averaged one per plant on garden tomatoes in Muskogee County and heavy in Payne County. (Okla. Coop. Sur.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - GEORGIA - Light on garden sweet corn in Paulding County. (Atkinson). TENNESSEE - Large spot infestations in several east and central areas. Damaged some cornfields. (Mullett, Gordon). OHIO - Whorl feeding in 2-6 (averaged 4.5) percent of corn in 8 southwestern area fields. Stalk tunneling in Hamilton County field where 10 percent of corn in tassel. (Lewis). INDIANA - Pupae in cornfield in Sullivan County, a sandy soil area. (Meyer).

WISCONSIN - European corn borer larval injury up to 20 percent in some southern cornfields. Infested 7-10 percent of plants in early tassel stage; older and younger fields much less affected. Larvae mostly in second instar in Jefferson, Walworth, Racine, Waukesha, Iowa, Lafayette, Grant, and Sauk Counties. Third instar in Waukesha County. (Wis. Ins. Sur.). MINNESOTA - Moth emergence well underway in northern and central districts and nearing

completion in southernmost districts. Ostrinia nubilalis laid eggs in east-central and southwest districts. One egg mass per 100 plants and no borers in one east-central area field. Some corn 54 inches tall and large enough in all districts to sustain borers. (Minn. Pest Rpt.). NEBRASKA - Infested 0-12 (averaged 1.75) percent of cornfield in Clay County. Infested 3-70 (averaged 30) percent of northeast district fields. Fed on 5 percent of corn in early planted, irrigated field in Gage County; corn averaged 96 inches extended leaf and beginning to silk out. Averaged 30 percent infested plants in 2 fields of 75-inch corn in Jefferson County. Fourth instars began to enter stalks in these fields. (Witkowski et al.).

POTATO STEM BORER (Hydroecia micacea) - NEW YORK - Reduced stand 50 percent in 10-acre Franklin County cornfield, infestations heavier in low areas of field with quackgrass. Late instars and pupae taken in St. Lawrence County. Spotty infestations county-wide. Damage mainly near field borders. (Muka, Willson).

CORN ROOTWORMS (Diabrotica spp.) - INDIANA - First D. longicornis (northern corn rootworm) adult of season in Tippecanoe County July 2. (Van Woerkom). First adult in blacklight trap in Vanderburg County June 21. (Ulagaraj). MISSOURI - D. longicornis adults averaged 5 per 25 corn plants in north-central area, D. virgifera (western corn rootworm) adults averaged 4.5 per plant on lodged popcorn in southwest area. Adults 23 per 25 plants in 3 of 47 fields in north-central area. (Thomas, Munson). NEBRASKA - First newly emerged D. virgifera adults at Mead, Saunders County, June 30. (Mayo). SOUTH DAKOTA - Diabrotica spp. larvae 4-67 per plant in southeast area. Most larvae in first and second instar with about 15 percent third instar. Single prepupa found June 30. (Walgenbach). MINNESOTA - Diabrotica spp. larval development appears slow due to excess moisture. Heaviest in southwest district. Larvae ranged 5-6 per plant in Lac Qui Parle County cornfield. Larvae trace in 2 southeast district fields. (Minn. Pest Rpt.). WISCONSIN - Nearly full-grown Diabrotica sp. larva in Iowa County cornfield. (Wis. Ins. Sur.).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - NORTH CAROLINA - Damaged Chowan County corn. Drought conditions increase damage probability. (Goodwin, Van Duyn).

SMALL GRAINS

WHEAT STEM MAGGOT (Meromyza americana) - COLORADO - Damage economic on spring wheat in Phillips County with up to 30 percent of plants affected in some areas of fields. (Hantsbarger). SOUTH DAKOTA - Damage in isolated fields up to 5-7 percent on Brookings County spring wheat and up to 40 percent on Tripp County winter wheat. Injury appears much more prevalent than in previous years. (Walgenbach).

RICE WATER WEEVIL (Lissorhoptrus oryzophilus) - ARKANSAS - Damaged rice roots in Clay County. Plants easily pulled up and some floating in water. Adult feeding signs nearly 100 percent earlier in season, but producers did not treat and were reluctant to drain due to short water supplies. Some producers treating now. (Boyer).

TURF, PASTURES, RANGELAND

GRASS BUGS - UTAH - Irbisia pacifica, I. brachycerus, and Labops utahensis severely damaged 5 acres of intermediate wheatgrass at Mantua, Box Elder County. Grass bugs, averaged 30 per sweep, damaged 3,500 acres of intermediate wheatgrass and other grasses in Round Valley, Morgan County. One grass bug per 30 sweeps in 900 acres of range treated in 1974; range green and undamaged. (Haws et al.).

A SCARAB BEETLE (Ataenius spretulus) - OHIO - All stages averaged 74 per square foot in untreated check plots on golf course fairways (annual bluegrass and bent grass mixtures) at Cincinnati, Hamilton County. Completely killed large patches of grass. (Skelly, Lewis).

WHITELINED SPHINX (Hyles lineata) - NEVADA - Mostly late instars, up to 3 larvae per forb plant and up to 4 larvae per desert peach (Prunus andersonii) plant on several hundred acres of rangeland in Red Rock Valley and Cold Spring Valley area, Washoe County. Heaviest infestations spotted and localized. (Bechtel, Clark).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - WASHINGTON - Larvae and adults collected from alfalfa at Warden, Adams County, May 20, 1975. Collected and determined by B. Madsen. Collected from alfalfa in Wena Valley, Yakima County, June 4, 1975. Collected and determined by J. Griffin. Collected from seed alfalfa at Odessa, Lincoln County, by E. Kulp June 16, 1975. Determined by A.L. Antonelli. These are new county records. (Antonelli). UTAH - Damage very light to first-crop alfalfa in Box Elder County. (Lindsay). NEBRASKA - Continued light in most fields in east and central districts. Adults averaged 1.6 and larvae 3.6 per 100 sweeps in 22 Dawson County fields. (Manglitz, June 25). Currently, adults 10-18 (averaged 12.5) and larvae 0-30 (averaged 8) per 10 sweeps in Gage and Jefferson Counties. Fields ranged 5-60 percent bloom stage. Some second cutting occurred. (Miller). OHIO - Larvae 29 and adults 61 per 100 sweeps in uncut alfalfa field in Wayne County June 27. (Lewis).

PEA APHID (Acyrthosiphon pisum) - NEVADA - Ranged 5-100+ per sweep of hay alfalfa in Hualapai Valley, Washoe County. Predators, especially lady beetles, numerous in more heavily infested fields. (Barclay). Averaged 250 per sweep on second-growth hay alfalfa west of Fallon, Churchill County; many plants yellowed. (Kilpatrick). OKLAHOMA - Began buildup on alfalfa in Caddo and Washita Counties. (Okla. Coop. Sur.). MINNESOTA - Buildup unusually slow this season. Beneficial insects sufficient to hold down populations. Pea aphid ranged 20-40 (up to 200) per 100 sweeps in some fields. (Minn. Pest Rpt.). WISCONSIN - Remained under 10 per sweep of alfalfa in all areas surveyed. Parasitism by wasps continued high in most areas, up to 30 percent. Counts of 45 per sweep in 2 second-growth alfalfa fields, one each in Kenosha and Racine Counties. (Wis. Ins. Sur.).

REDLEGGED GRASSHOPPER (Melanoplus femurrubrum) - WISCONSIN - Emergence of first instars underway in most second-growth alfalfa. As high as 4 per sweep in some southern alfalfa fields. (Wis. Ins. Sur.).

SOYBEANS

GREEN CLOVERWORM (Plathypena scabra) - OKLAHOMA - Ranged 0-44 per 30 row feet of soybeans in Wagoner County. Light in Sequoyah County. (Okla. Coop. Sur.). KENTUCKY - Larval averages per row foot of soybeans: 1.62 in Hardin County and one larva in most western areas. (Yeargan, Raney).

PEANUTS

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - GEORGIA - Light across peanut belt; few moderate to heavy infestations in southwestern and south-central areas; some warrant control. (Jennings, et al.).

GRANULATE CUTWORM (Feltia subterranea) - GEORGIA - Light to moderate across peanut belt; 4+ larvae per foot of row in few infestations in south-central area. (Tankersley et al.).

COTTON

BOLL WEEVIL (Anthonomus grandis) - OKLAHOMA - Punctured 0-21 percent of cotton squares in southwest counties. Adults appeared on Muskogee County cotton. Pheromone traps caught 161 adults in Jackson County. (Okla. Coop. Sur.). MISSISSIPPI - Infested cotton in all counties in hill section. Punctured squares by county: Yalobusha 0-20, Lowndes 10-30 in 500 acres, Rankin 0-5 in 5,000 acres, Carroll 0-10 in 1,500 acres, and Noxubee 0-30 in 2,500 acres. (Robinson). ALABAMA - Heaviest of past 10 years. Overwintered weevils still taken in sex-lure traps on large farm in Macon County. Infested 20-68 percent of squares in several fields in area. Treatments applied on one farm. Infested 2-40 (averaged 15-20) percent of squares in several Elmore and Tallapoosa County fields. Infested 0-25 percent, mostly egg laying punctures, of squares in Cherokee County. "Hatch-out" expected July 8-11; "hatch-out" begun in older fields in southern and central areas. Heavy in Marengo County but cotton not fully fruiting on June 27. (Gilliland et al.). GEORGIA - Punctured up to 40 percent of cotton squares just starting to fruit in south area. (Womack). First-generation adults emerged in 2 fields with 40-percent punctured squares in Crisp County field. Increased in some fields with treatment underway in Colquitt County. (Womack et al.). TENNESSEE - Still heavy in traps in southern counties of western area. Feeding and egg laying punctures very evident in early cotton. Squares not enough to justify counts in this area or central area. (Locke, Cagle).

BOLLWORMS (Heliothis spp.) - OKLAHOMA - H. zea (bollworm) eggs and larvae light on most cotton in southwest counties but economic in few isolated fields. H. virescens (tobacco budworm) pheromone trap catches were 3 moths in 4 Grady County traps and 4 in 24 Jackson County traps. (Okla. Coop. Sur.). ARKANSAS - H. zea and H. virescens spotted infestations heavier than normal for this time of year in several areas. (Boyer). MISSISSIPPI - First

generation of Heliothis spp. on cotton, one of heaviest in several years. Damaged 10-15 percent of terminals in many fields in Yalobusha, Lowndes, Rankin, Madison, Carroll, and Noxubee Counties. Beneficial insects controlled this generation but few fields chemically controlled. (Robinson). ALABAMA - Heliothis spp. moth flights and oviposition decreased. Small larvae 1-14 per 100 terminals in Elmore, Tallapoosa, and Marengo Counties. Eggs 0-7 in Cherokee County with small larvae 0-3 per 100 terminals. (Lowery et al.). GEORGIA - Bollworm egg laying light, up to 7 small larvae per 100 cotton terminals in Calhoun County. Remained light in Crisp and Colquitt Counties. (King et al.). TENNESSEE - Heliothis spp. eggs 0-2 per 100 terminals in southern counties of central area. (Cagle).

TARNISHED PLANT BUG (Lygus lineolaris) - ALABAMA - Treatments applied to 1,000+ acres in Limestone and Jackson Counties. Light, 3-14 per 100 feet of row, in Cherokee County. Heavy in some Marengo County fields. (Salter et al.). MISSISSIPPI - Continued stable, increased in some cotton fields. "Hatch-out" of nymphs on cultivated cotton in Noxubee, Lowndes, and Chickasaw Counties. (Robinson).

TOBACCO

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - OHIO - Averaged less than one adult per tobacco plant in Brown County. Heaviest damage estimated at 5 percent foliar loss. Less than one percent foliar loss in most fields. (Lewis).

A TREE CRICKET (Oecanthus celerinctus) - NORTH CAROLINA - Adults fed on terminal growth of experimental tobacco in field near Clayton, Johnston County. About 30 percent of plants with damage similar to old budworm injury. Crickets ranged 1-3 on about 10 percent of plants. Rarely damages tobacco to any extent in State. (Mistric et al.).

SUGAR BEETS

SUGARBEET ROOT MAGGOT (Tetanops myopaeformis) - IDAHO - Fly activity in south-central area delayed by cool spring, peaked June 4-16. Catch on sticky stake traps less than half of catch for 1974. (Blickenstaff).

MISCELLANEOUS FIELD CROPS

SUNFLOWER MOTH (Homoeosoma electellum) - OKLAHOMA - Larvae heavy, 5-25 per head, on blooming sunflowers checked in Harmon County. Many moths but no larvae in Jackson County. (Okla. Coop. Sur.).

CARROT BEETLE (Bothynus gibbosus) - OKLAHOMA - Light trap counts (one trap per county): Tillman 154, Greer 151, and Texas 22. (Okla. Coop. Sur.).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - UTAH - Moderately heavy on some Weber and Box Elder County potatoes and tomatoes. (Knowlton). MINNESOTA - Newly hatched larvae on early planted potatoes in Red River Valley; eggs laid on later varieties. No damage to date. Future treatments difficult due to extremely wet fields. (Minn. Pest Rpt.). MICHIGAN - Eggs and young larvae infested some potato fields where soil systemics not used and infested some end rows in systemically treated fields. (Liebherr).

GREEN PEACH APHID (Myzus persicae) - OREGON - Alates 1-5 per 100 bottom leaves on potatoes in Washington, Multnomah, and Clackamas Counties. Occasional non-winged adult appeared on field borders. (Collins).

COLE CROPS

CROSS-STRIPED CABBAGEWORM (Evergestis rimosalis) - INDIANA - Numbers equaled or exceeded those of Pieris rapae (imported cabbageworm); both beginning to cause extensive damage to collards, broccoli, cauliflower, and cabbage in Tippecanoe County gardens. (Chandler).

IMPORTED CABBAGEWORM (Pieris rapae) - WISCONSIN - Increasing number of adults laying eggs on cabbage in southeast, south-central, and east-central districts. Very early instars on garden cauliflower and broccoli in Dane County. (Wis. Ins. Sur.).

CUCURBITS

SQUASH VINE BORER (Melittia cucurbitae) - OKLAHOMA - Heavy on garden squash in Tulsa and Muskogee Counties. (Okla. Coop. Sur.). INDIANA - Adults active in Tippecanoe County. (McNeal). OHIO - Adults active in northeastern area. (Purrington).

CORRECTIONS

CEIR 25(21):419 - Top of page - "... Amblysieus fallacis ..." should read "... Amblyseius fallacis ..."

CEIR 25(21):422 - New County Records - "... ARMORED SCALES (Aonidiella taxus, Diaspidiotus liquidambris) ..." should read "... ARMORED SCALES (Aonidiella taxus, Diaspidiotus liquidambaris) ..."

CEIR 25(26):533 - "THREECORNERED ALFALFA HOPPER (Spissitilus festinus) ..." should read "THREECORNERED ALFALFA HOPPER (Spissistilus festinus) ..."

DECIDUOUS FRUITS AND NUTS

APPLE CURCULIO (Tachypterellus quadrigibbus) - ARIZONA - Damaged 2 commercial apple orchards in Oak Creek Canyon, Coconino County. Up to 5 oviposition punctures with many feeding punctures per fruit. Mainly infested Golden Delicious apples, but caused total loss in one orchard of 26 varieties. Heavy in abandoned orchards. Collected by J. May, April 23, 1975. Determined by R.E. Warner. This is a new county record. (Ariz. Coop. Sur.).

CODLING MOTH (Laspeyresia pomonella) - IDAHO - Pheromone trap catches of males at Moscow, Latah County: 0 on June 27-28, 6 on June 29-30, 21 on July 1, and 5 on July 2. (Portman).

LESSER PEACHTREE BORER (Synanthedon pictipes) - GEORGIA - Adults slightly increased over last period except during cloudy periods; averaged about 40-60 males per pheromone trap in Peach County. (Blythe).

TEPHRITID FLIES (Rhagoletis spp.) - OREGON - First R. indifferens (western cherry fruit fly) adults trapped in Union County June 30. Individual flies taken in pheromone traps in cherry orchards at Imbler and Cove. (Kirsch). MICHIGAN - R. cingulata (cherry fruit fly) peaked at New Era, Oceana County. (Nichols).

FALL WEBWORM (Hyphantria cunea) - GEORGIA - Light to heavy across south area on untreated pecan trees. (Ellis, French). OKLAHOMA - Light on Rogers County pecan trees and on pecans, persimmons, and sweetgums in Sequoyah County. Webs up to 6 inches in diameter. (Okla. Coop. Sur.).

PECAN NUT CASEBEARER (Acrobasis nuxivorella) - OKLAHOMA - Damaged nut clusters ranged 4.8-19.7 percent on untreated native pecans checked in Rogers County. (Okla. Coop. Sur.).

HICKORY SHUCKWORM (Laspeyresia caryana) - GEORGIA - Pecan nut drop first noted June 19 in Peach County. Adults averaged less than one per blacklight trap per night in Peach County. (Payne, Blythe).

ASIATIC OAK WEEVIL (Cyrtepistomus castaneus) - TENNESSEE - Heavily damaged pecan and Chinese chestnut trees in western area. (Gordon, Bruer).

PECAN SPITTLEBUG (Clastoptera achatina) - MISSISSIPPI - Second generation on pecans in 50-acre orchard in Lowndes County. Averaged one spittle mass per limb in 10 limbs on 3 trees sampled. (Neel). Second generation on Humphreys County pecans.(Cochran).

SMALL FRUITS

ROSE CHAFER (Macrodactylus subspinosus) - OHIO - Adults fed on grape blossoms in 2 Ashtabula County vineyards on June 19. Vines almost completely fruitless on July 1 while nearby vineyards had normal fruit set and development. Affected vineyards in sandy soil. (Williams).

ROSE SCALE (Aulacaspis rosae) - OHIO - Infested commercial black raspberries in Wayne County. (Williams).

ORNAMENTALS

BAGWORM (Thyridopteryx ephemeraeformis) - MISSISSIPPI - Third instars 75-150 per 3-foot bush on bushy junipers in Oktibbeha County. (Robinson). OKLAHOMA - Heavy on ornamental evergreens in Mayes and Muskogee Counties. Larvae averaged about 0.5 inch and 100+ per plant. (Okla. Coop. Sur.).

AN ARMORED SCALE (Pseudaulacaspis cockerelli) - FLORIDA - Moderate on leaves of one Pandanus sp. (screwpine) examined at retail outlet in Ft. Pierce June 17. Adults heavy on stems and leaves of all 10 Calathea discolor plants at nursery in Ocoee, Orange County, June 24. Both host records for State. (Fla. Coop. Sur.).

FOREST AND SHADE TREES

SPRUCE BUDWORM (Choristoneura fumiferana) - WISCONSIN - Moth emergence began week of June 23. (Gall). MINNESOTA - Heavy balsam fir defoliation in local areas north of Duluth, Saint Louis County. Feeding ended for season, pupation beginning. (Minn. Pest Rpt.).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - MICHIGAN - Pupation about 60 percent at Lansing, Ingham County. Emergence in next 7 days. (Wallner).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - DELAWARE - Fifth instars heavy, up to 10 larvae in 4-inch terminal on Japanese black pine in Sussex County. (Burbutis).

SOUTHERN PINE BEETLE (Dentroctonus frontalis) - TENNESSEE - Continued to kill pines in large area of eastern section. (Mullett).

PINE SPITTLEBUG (Aphrophora parallela) - WISCONSIN - Adults comprised 25 percent of population in Jackson County as of July 1. Heavily infested Scotch pines in Chippewa, Clark, Eau Claire, and Jackson Counties. (Wis. Ins. Sur.).

LOCUST LEAFMINER (Xenochalepus dorsalis) - WEST VIRGINIA - Larvae damaged 40-50 percent of all trees observed in Kanawha County. (Hacker). VIRGINIA - Damage heavy in Roanoke (60 percent of leaves injured), Botetourt (50 percent injury), and Rockbridge Counties (50 percent injury) and very light in Shenandoah, Warren, and Frederick Counties. (Allen). KENTUCKY - Damaged many central area locust trees. Destroyed 10-95 percent of foliage in many areas. (Barnett).

ELM LEAF BEETLE (Pyrrhalta luteola) - MICHIGAN - Moving to tree bases to pupate. Second brood expected late July. Spring brood considered most troublesome. (Wallner). OKLAHOMA - damage heavy to Siberian and American elms in Major County. (Okla. Coop. Sur.). OREGON - Larval feeding damage noted on untreated Chinese and Siberian elms at southeast Portland, Multnomah County, July 1. Most immatures in second instar. (Penrose).

FALL WEBWORM (Hyphantria cunea) - MISSISSIPPI - Webs up to 2 feet in diameter on oaks, pecans, and hickory in all sections. (Robinson). TENNESSEE - Larvae, earlier than normal, and feeding on variety of trees in western and central areas. (Gordon, Locke).

A TORTRICID MOTH (Archips negundanus) - UTAH - Severely defoliated boxelder trees at mouths of Logan and Wellsville Canyons, Cache County. Defoliation 20-50 percent at Pleasant Grove, Salem, and Mapleton in Utah County. (Davis, Knowlton).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 346 cases reported from continental U.S. during June 22-28 as follows: Texas 342, New Mexico 1, Arizona 3. Total of 127 cases confirmed from Mexico. Number of sterile flies released in U.S. this period totaled 150,987,000 as follows: Texas 135,039,000 (including additional 420,000 released week ending June 21); New Mexico 180,000; Arizona 15,768,000. Total of 25,958,000 sterile flies released in Mexico. (Vet. Serv.).

A TABANID FLY (Silvius pollinosus) - NEW MEXICO - Four females collected while biting man at Bitter Lake Wildlife Refuge, Chaves County, May 7, 1975. Collected by W. Iselin. Determined by F.C. Thompson. This is a new State Record. (N.M. Coop. Rpt.).

FACE FLY (Musca autumnalis) - MISSISSIPPI - Collections on beef cattle by county: Choctaw and Lafayette June 25, 1974; Holmes, Madison, Leake, Neshoba, and Kemper June 13, 1975; De Soto, Tunica, Coahoma, and Bolivar June 17, 1975; Tate, Panola, Quitman, Sunflower, Washington, Sharkey, and Issaquena June 18, 1975. Collected and determined by J.V. Robinson. These are new county records. Adults averaged 25 per face on beef cattle in Oktibbeha County. (Robinson). TENNESSEE - Observed on cattle in McNairy, Hardeman, and Fayette Counties June 30 and July 1. Averaged 12+ per head. Collected and determined by J. Locke. These are new county records. (Gordon, Bruer). KENTUCKY - Adults averaged 20.5 on Shelby County cattle. Very heavy on cattle and horses statewide. (Barnett). INDIANA - Heavy; increased incidence of pink eye in cattle and sheep in Warren County. (Chandler). ILLINOIS - Averaged 32.5 and 29.8 on untreated beef cattle in Grundy and DeWitt Counties, respectively. (Ill. Ins. Rpt.). ARKANSAS - Collected on beef cattle near Harrison, Boone County, by W.P. Boyer and B.F. Jones July 1, 1975. Collected on beef cattle at Sweet Home, Pulaski County, by W. Beaty July 1, 1975. Both determined by E.P. Rouse. Both are new county records. (Boyer). OKLAHOMA - Moderate to heavy on Nowata County cattle. (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - ALABAMA - Heavy, 200+ per animal, on most cattle throughout Wilcox County. (Farquhar). MISSISSIPPI - Adults averaged 200+ on beef cattle in Monroe, Clay, Lowndes, Noxubee, Attala, and Calhoun Counties. (Robinson). TENNESSEE - This species and tabanid flies heavier than usual for time of year in western area. (Locke). ILLINOIS - Averages of 125 and 360 on untreated beef cattle in Grundy and DeWitt Counties, respectively. (Ill. Ins. Rpt.). OKLAHOMA - Moderate to heavy on beef cattle in Mayes, Nowata, and Hughes Counties. (Okla. Coop. Sur.). NORTH DAKOTA - Ranged 100-500 (averaged 400) per animal on McKenzie County beef cattle. (Brandvik).

MOSQUITOES - WISCONSIN - Continued heavy in many areas, especially near wooded lowlands. Aedes vexans continued dominant on humans in most west-central counties. Annoyed cattle severely in portions

of Polk and Outagamie Counties. (Wis. Ins. Sur.). NEW MEXICO - Anopheles freeborni larvae increased, 2.6 per dipper, in Dona Ana County. Anopheles adults common in moist areas of pecan groves. One Aedes dorsalis specimen in bite collection. Culex tarsalis larvae and pupae taken in this area. (N.M. Coop. Rpt.).

SHEEP BOT FLY (Oestrus ovis) - INDIANA - First adult of season July 2 in Warren County. (Chandler).

NORTHERN FOWL MITE (Ornithonyssus silviarum) - VIRGINIA - Moderate to heavy on caged laying hens (Rhode Island cross) in Roanoke County June 25 and on caged layers (White Leghorns) during June at Rural Retreat, Wythe County. Intense infestation on nestling passerine birds on farm in Montgomery County. (Hall, Townsend).

ITCH MITE (Sarcoptes scabiei) - OHIO - Infested 25 8-week-old Duroc pigs in Auglaize County. Affected over 95+ percent of skin on one pig. (Fox, Alden).

HOUSEHOLDS AND STRUCTURES

CARPENTER BEE (Xylocopa virginica) - INDIANA - Serious infestations still reported throughout Tippecanoe County. Some redwood structures with multiple entrance holes, 25+ per 8 feet. Extensive damage to siding of one home in Carroll County. (Chandler).

BENEFICIAL INSECTS

A BRACONID WASP (Microctonus aethiops) - OHIO - This parasitoid of Hypera postica (alfalfa weevil) recovered May 20 from Clark County release site. Parasitism ranged 1-26.7 (averaged 6.8) percent. Following are new county records. Collected from alfalfa weevil adults by county: Wyandot on May 28; Wood, Henry, Putnam, and Seneca on June 4; and Sandusky on June 16, 1975. All collected, reared, and determined by J.K. Flessel. (Flessel, Lewis).

A EULOPHID WASP (Tetrastichus julis) - PENNSYLVANIA - Recovered from Oulema melanopus (cereal leaf beetle) larvae as follows. Carrolltown, Cambria County, by L. Pealer June 24; Franklin Township, Huntingdon County, by K. Kadow June 3; Indiana County by L. Pealer June 4. These are all first recoveries in these counties. (PPQ).

A MEAGACHILID BEE (Megachile pacifica) - NEVADA - Heavy adult emergence at Lovelock, Pershing County. Emergence began at Orovada, Humboldt County. (Arnett).

ALKALI BEE (Nomia melanderi) - NEVADA - Males emerged previous period and females currently emerging at Lovelock, Pershing County. (Arnett).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - VIRGINIA - Larvae completed development in Shenandoah Valley. Small grain damage spotty but severe in some areas. (Allen). PENNSYLVANIA - Survey of oats in 17 counties June 18-26: Adults 1-15 per 100 sweeps; eggs 1-32 and larvae 1-66 per 10 foot row; damage up to 80 percent. (Gates).

GRASSHOPPERS - NORTH DAKOTA - Ranged from less than one to 30 (averaged one) in McKenzie County alfalfa fields. Marginal populations ranged from less than one up to 40 (averaged 7.5) per square yard. Melanoplus sanguinipes dominant. M. bivittatus, M. packardii, and M. sanguinipes in first through fifth instars. Some light marginal damage in wheatfields. M. sanguinipes and M. bivittatus ranged 5-20 (averaged 8) per square yard in Sheyenne National Grasslands. Populations in second and fourth instars. (Brandvik, Carey). SOUTH DAKOTA - Grasshoppers up to 120 per square yard with 30-40 per square yard common in some areas, mostly nymphs. (Walgenbach). OKLAHOMA - Cooperative control program involving 24,155 acres of rangeland in Roger Mills County completed June 25. (Okla. Coop. Sur.). NEW MEXICO - Delimiting surveys near Monero, Rio Arriba County, established about 100,000 acres of infested rangeland. Controls under consideration. Additional 35,000 acres infested near McGaffey, McKinley County. Aulocara and Grammerotettix dominant genera. (N.M. Coop. Rpt.). NEVADA - Fouth instars to adults of M. sanguinipes averaged 4-15 per square yard on 1,320 acres of mostly hay alfalfa, some mixed hay alfalfa and barley fields, in northern Hualapai Valley, Washoe County. Averaged 30 per square yard on windrows and 15 per square between windrows on 60 acres of hay alfalfa at Clear Creek, Washoe County. (Barclay). MONTANA - First to third instars of unspecified species 30+ per square yard in headlands, borrow pits, and grain borders south of Glendive, Dawson County. (Pratt).

GYPSY MOTH (Porthetria dispar) - PENNSYLVANIA - First pupae of season on oaks in Juniata County June 17. (Quimbey). Pupae in Schuylkill County June 19 (Ticehurst) and in Columbia County June 25. (Jackowski).

MORMON CRICKET (Anabrus simplex) - NEVADA - Adults less than one to 6 per square yard in scattered pockets on about 640 acres of rangeland in Wight Canyon area, Humboldt Range, Pershing County. (Barclay).

JAPANESE BEETLE (Popillia japonica) - VIRGINA - Light populations on thistle in Rockingham County June 18; on grapes in Shenandoah County; on sassafras in Frederick and Warren Counties July 1, 1975. (Allen, Szarzynski). WEST VIRGINIA - Adults first emerged in Pocahontas and Pendleton Counties July 1. Many adults lightly damaged green beans and ornamentals in Hardy and Grant Counties. (Hacker). OHIO - Adults began feeding on raspberries, blueberries, and grapes in northeastern area. (Williams). WISCONSIN - First adult trapped week of June 22 at Kenosha in same area where some taken annually since 1972. Area heavily trapped in 1974, but none taken outside small 2 by 5 block area. Efforts to detect grubs or beetles feeding on foliage in area not successful to date. (Wis. Ins. Sur.).

New State Record - Adults of a DYTISCID BEETLE (Hygrotus medialis (Le Conte)) collected at Lake Waiau, Hawaii Island, in September 1974 by J. Machialek. Two adults collected in light traps at Kohala, Hawaii, in March 1975 by J.W. Beardsley. Further information not available at this time. Determined by P.J. Spangler. (Beardsley).

General Vegetables - GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) heavy on eggplant in backyard plantings at Waianae, Oahu. All stages present. Light on beans and hechima in same area. (Sanidad).

DETECTION

New Western Hemisphere Record

A SIRICID WASP (Eriotremex sp.) - ALABAMA - One adult collected from firewood in home near military flying school at Dozier, Covington County, by J.D. Clark May 9, 1975. Determined by D.R. Smith. Known only from southeast Asia, this is a new Western Hemisphere record. Adults had been emerging for several days. Firewood had many exit holes, 0.25 inch wide. Two larvae, few pupae, and several adults remained. Winged adults were as deep as 2-3 inches in heartwood. Firewood cut from Quercus sp. (water oak) tree on property in late December 1974. Infested dead water oak tree near house and hardwood log on ground. (PPQ).

New State Records - A TABANID FLY (Silvius pollinosus) - NEW MEXICO - Chaves County. (p. 580). A DYTISCID BEETLE (Hygrotus medialis) - HAWAII - Hawaii Island. (p. 583).

New County Records - ALFALFA WEEVIL (Hypera postica) WASHINGTON - Adams, Yakima, Lincoln. (p. 574). APPLE CURCULIO (Tachypterellus quadrigibbus) ARIZONA - Coconino (p. 578). A BRACONID WASP (Microctonus aethiops) OHIO - Wyandot, Wood, Henry, Putnam, Seneca, Sandusky. (p. 581). FACE FLY (Musca autumnalis) ARKANSAS - Boone, Pulaski. MISSISSIPPI - Choctaw, Lafayette, Holmes, Madison, Leake, Neshoba, Kemper, De Soto, Tunica, Coahoma, Bolivar, Tate, Panola, Quitman, Sunflower, Washington, Sharkey, Issaquena. TENNESSEE - McNairy, Hardeman, Fayette. (p. 580).

LIGHT TRAP COLLECTIONS

	Temperature °F.	Precipitation (inches)	Type of trap (BL = blacklight, I = incandescent, MV = mercury vapor, O = other)	Agrotis ipsilon (black cutworm)	Estigmene acrea (salt marsh caterpillar)	Rhyo auxiliaris (gray cutworm)	Pyrausta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	H. zea (bollworm, corn earworm, tomato fruitworm)	Laphygma frugiperda (fall armyworm)	Loxostege commixtalis (alfalfa webworm)	Loxostege rantalis (garden webworm)	Loxostege sticticalis (beet webworm)	Mamestra picta (tobacco budworm)	Mamestra quinquenodulata (tobacco hornworm)	Mamestra renata (tobacco budworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Spodoptera frugiperda (fall armyworm)	Spodoptera ornithogalli (yellowstriped armyworm)	Trichoplusia ni (cabbage looper)	Crops
COLORADO																									
Denver 6/20-27			BL			6					21								1						
FLORIDA																									
Gainesville 6/27-7/2			BL					11		1						1				1	3	6			
INDIANA (Districts)																									
Northwest 6/21-27			BL	4																					
Southwest 6/26-7/2			3BL	172	12					7				27			23	77	293						
KENTUCKY (County)																		301	156						
Fayette 7/2-3			BL	7												1		8	21						
MICHIGAN (Counties)																									
Lenawee 6/23-30			BL	234													112	199	976						
Oceana 6/23-30			BL	104					3					3	1		49	95	336				1		
MINNESOTA																									
Fergus Falls 6/26-7/3			BL																227						
Worthington 6/26-7/3			BL																237						
MISSISSIPPI																									
Stoneville 6/27-7/3	78-96	1.50	2BL	6	1				20	17								4	33		1	132			
NEBRASKA																									
Scottsbluff 6/21-26			BL	1		6												1	1						
NEW JERSEY																									
Vineland 6/25-7/1			BL	6																					
Seabrook 6/25-7/1			BL	20										6			3								
NEW MEXICO																	3								
Dona Ana 6/27-7/3			3BL							11					14				2	7					
NORTH DAKOTA																									
Bismarck 6/26			BL																4						
Bottineau 6/26			BL																1						
OHIO																									
Wooster 6/28-7/3			3BL	139													2	46	321				1		

LIGHT TRAP COLLECTIONS

	Temperature °F.	Precipitation (inches)	Type of trap (BL = blacklight, I, MV = incandescent, O = mercury vapor, other)	Agrotis ipsilon (dotted cutworm)	Estigmene acrea (salt-marsh caterpillar)	Euxoa auxiliaris (army cutworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	H. zea (bollworm, corn earworm, tomato fruitworm)	Laspeyresia pomonella (codling moth)	Loxostege commixtalis (alfalfa webworm)	Loxostege sticticalis (beet webworm)	Mamestra quinquemaculata (tomato hornworm)	Manduca sexta (tobacco hornworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Spodoptera frugiperda (fall armyworm)	Spodoptera ornithogalli (yellowstriped armyworm)	Trichoplusia ni (cabbage looper)	Crops
PENNSYLVANIA (Districts)																						
Central 6/19-7/1			14BL	50	1				19						17	13	217			2		
South East 6/19-7/1			8BL	18					2						4	1	249			2		
SOUTH DAKOTA																						
Brookings 6/25-7/2			BL	14		8									50	142	415				1	
WEST VIRGINIA (Counties)																						
Kanawha 7/2			BL	1												1	5					
Randolph 6/30			BL	20												4	59				1	
WISCONSIN																						
Lancaster 6/26-7/1			BL	13											14	75	327					
Mazomanie 6/26-7/1			BL	2												5	17					

Weather of the week continued from page 568.

occurred from west-central Texas into Tennessee and western South Carolina and throughout the gulf States. Showers developed into thunderstorms from the Pacific Northwest through Montana. The pattern changed some on Thursday, and thunderstorms were reported throughout Texas and east to Alabama and north to southern Oklahoma and Arkansas. A cold front moving south triggered showers and some severe weather from Wisconsin to Virginia and through the Lakes and New England. Golf ball-size hail fell in southern Wisconsin and in northern Ohio. The northern Rockies experienced showers which developed into evening thunderstorms. A drastic flash flood occurred in Las Vegas, Nevada, in the afternoon as a result of sudden heavy rain in the vicinity. The Fourth of July saw some respite in the concentration of thunderstorms. Widely scattered storms occurred in Texas and Oklahoma, a few along the gulf coast, and in the Tennessee and Ohio River Valleys. More numerous storms were reported from South Carolina to Maryland and in northern New England. More rain fell in the troubled Red River Valley. Light showers from Nevada to Montana completed the picture. Saturday, thunderstorms were concentrated in the upper Mississippi Valley with the greatest activity in the vicinity of northeast Iowa. Other heavy storms were near the confluence of the Ohio and Mississippi Rivers. Widespread storms occurred in the Plains from Indiana, south through Alabama and in the Southeast. Tornadoes were reported in Indiana, South Dakota, and Florida. Hail of 1-2 inches fell in Illinois. After some weakening early Sunday, storms intensified again with most activity being noted from the western Great Lakes to the middle Mississippi Valley and from the southern Appalachians to the mid-Atlantic coast. More were found over the central gulf coast and Florida. A fifty m.p.h. wind was clocked in New Orleans, Louisiana. Late in the day, thunderstorms began to form along the eastern slopes of the Rockies from Wyoming to Texas.

TEMPERATURE: Average temperatures for the week showed most of the Nation to be above normal. California, Texas, Oklahoma, and Louisiana, and the east coast from New England through Georgia and Florida were below normal. The northern Plains and the Midwest were hot and muggy all week. On Monday, air stagnation advisories were issued for southern Indiana and Ohio, and all of Kentucky. Afternoon temperatures were in the 90's and relative humidity in the 70's. Tuesday morning saw record low temperatures in the Southeast, and air stagnation continued in the Midwest. Casper, Wyoming, had a record high temperature of 95 degrees and Scottsbluff, Nebraska, 101 degrees. Thursday, the sweep of hot moist air from the gulf and hot dry air from the Southwest brought temperatures above seasonal normals in the Plains, the Mississippi Valley, and the Great Lakes States. Temperatures of 100 degrees were reported as far north as South Dakota. Many States issued livestock safety advisories due to the hot weather. A cold front moving south from New England began to cool some areas and stir circulation in others so that some relief from air stagnation began on Friday. However, on Saturday, Little Rock, Arkansas, reported a low of only 78 degrees, the highest low on record for the date. Except for the Pacific coast most of the Nation continued to have temperatures in the 80's and 90's on Sunday. However, stagnation and the resulting pollution was not as bad as in the early part of the week.

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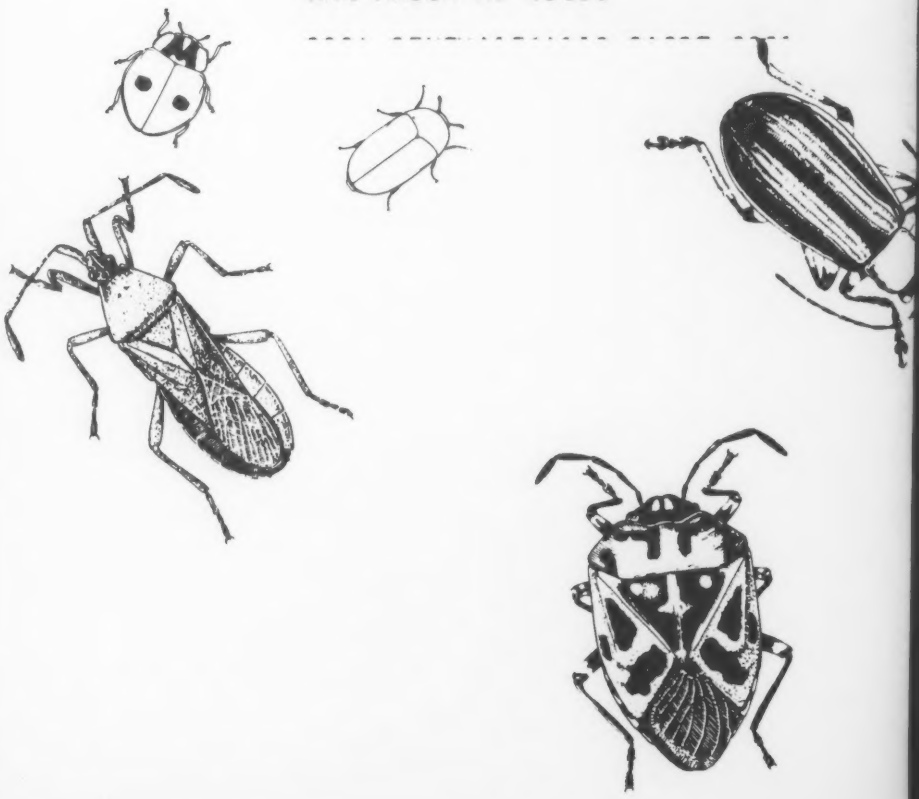
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